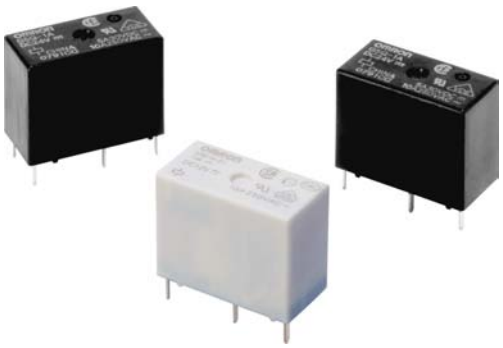
G5Q
PCB Power Relay

A Miniature Power Relay with 1-pole 10 A for various loads.



- Reduced power consumption with voltage holding and pulse width modulation (PWM) control. (-PW Model)
- Latching types that can contribute to energy saving are available.
- TV-8 rating (117 A inrush current), E-ballast rating (UL 508) conformed. (-HR Model)
- Conforms to IEC/EN60079-1, IEC/EN60079-15. (Except -HR Model)
  (IEC/EN) 60079-1 clause 15.5 Enclosed-break devices (Group IIA) testing passed.
  (IEC/EN) 60079-15 clause 11.2 Sealed devices testing passed.
- Conforms to IEC/EN 60335-1. (-HA Model)

■Model Number Legend

G5Q□-□□□-□-□-□-□
1 2 3 4 5 6 7 8

1. Relay Function
None : Single-side stable
U : Single-winding latching
K : Double-winding latching

2. Number of Poles
1 : 1-pole

3. Contact Form
None : SPDT (1c)
A : SPST-NO (1a)

4. Enclosure Rating
None : Flux protection
4 : Sealed

5. Classification
None : Standard
EU : High-capacity
EL : For Resistive load
EL2 : For Inrush load (TV-3)
EL3 : For Motor load
HR : For High Inrush load (TV-8)

6. Market Code
None : General purpose
HA : Home Appliance according to IEC/EN 60335-1

7. Case Vent Hole
None : No vent hole
VH : Vent hole

8. Special Requirement
None : Not supported
PW : Supported for holding voltage, PWM control.

■Application Examples

- Output of control system
- Home appliances
- Lighting control
- Building automation
- FA I/O module

■Ordering Information

Classification	Relay Function	Contact Form	Enclosure Rating	Model	Rated Coil Voltage	Minimum Packing Unit
G5Q-1A	Single-side stable	SPST-NO(1a)	Flux protection	G5Q-1A	5, 9, 12, 24 VDC	100 pcs/tray
				G5Q-1A-PW	5, 12, 24 VDC	
				G5Q-1A-HA	5, 12, 24 VDC	
				G5Q-1A-HA-PW	5, 12, 24 VDC	
			Sealed	G5Q-1A4	5, 9, 12, 24 VDC	
G5Q-1		SPDT(1c)	Flux protection	G5Q-1	5, 9, 12, 24 VDC	
				G5Q-1-PW	5, 12, 24 VDC	
				G5Q-1-HA	5, 12, 24 VDC	
				G5Q-1-HA-PW	5, 12, 24 VDC	
			Sealed	G5Q-14	5, 9, 12, 24 VDC	
-EU type (High-capacity)	Single-side stable	SPST-NO(1a)	Flux protection	G5Q-1A-EU	5, 12, 24 VDC	
				G5Q-1A-EU-HA	12, 24 VDC	
			Sealed	G5Q-1A4-EU	5, 12, 24 VDC	
		SPDT(1c)	Flux protection	G5Q-1-EU	5, 12, 24 VDC	
				G5Q-1-EU-HA	12, 24 VDC	
			Sealed	G5Q-14-EU	5, 12, 24 VDC	
-EL type (For Resistive load)	Single-side stable	SPST-NO(1a)	Flux protection	G5Q-1A-EL-HA-VH	5, 12, 24 VDC	
-EL2 type (For Inrush load)	Single-side stable	SPST-NO(1a)	Sealed	G5Q-1A4-EL2-HA	5, 12, 24 VDC	
-EL3 type (For Motor load)	Single-side stable	SPST-NO(1a)	Sealed	G5Q-1A4-EL3-HA	5, 12, 24 VDC	
-HR type (For High Inrush load)	Single-side stable	SPST-NO(1a)	Flux protection	G5Q-1A-HR-HA-VH	3, 5, 12, 24 VDC	
	Single-winding latching	SPST-NO(1a)	Flux protection	G5QU-1A-HR-HA-VH	3, 5, 12, 24 VDC	
	Double-winding latching	SPST-NO(1a)	Flux protection	G5QK-1A-HR-HA-VH	3, 5, 12 VDC	

Note 1. When ordering, add the rated coil voltage to the model number.
Example: G5Q-1A DC5
Rated coil voltage

Note 2. Contact your OMRON sales representative for tube packing models (40 pcs./tube). (Exclude -HR Model)

■Ratings

●Coil: G5Q-1A(-EU) Type

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
5 VDC	40.0	125	75% max.	5% min. 5 to 34%*1	190% (at 23°C)	approx. 200 approx. 32*1
9 VDC	22.2	405				
12 VDC	16.7	720				
24 VDC	8.3	2,880				

●Coil: G5Q-1(-EU) Type

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
5 VDC	80.0	63	75% max.	5% min. 5 to 25%*1	190% (at 23°C)	approx. 400 approx. 36*1
9 VDC	44.4	202				
12 VDC	33.3	360				
24 VDC	16.7	1,440				

●Coil: G5Q-EL,-EL2,-EL3 Type

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
5 VDC	80.0	63	75% max.	5% min.	190% (at 23°C)	approx. 400
12 VDC	33.3	360				
24 VDC	16.7	1,440				

●Coil: G5Q-HR, Single-side stable Type

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
3 VDC	150.0	20	75% max.	5% min.	180% (at 23°C)	approx. 450
5 VDC	90.0	56				
12 VDC	37.5	320				
24 VDC	18.8	1,280				

●Coil: G5Q-HR, Single-winding latching Type

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must set voltage (V)	Must reset voltage (V)	Max. voltage (V)	Power consumption (mW)
3 VDC	133.3	23	75% max.	75% max.	150% (at 23°C)	approx. 400
5 VDC	80.0	63				
12 VDC	33.3	360				
24 VDC	16.7	1,440				

●Coil: G5Q-HR, Double-winding latching Type

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must set voltage (V)	Must reset voltage (V)	Max. voltage (V)	Power consumption (mW)
3 VDC	266.7	11	75% max.	75% max.	150% (at 23°C)	approx. 800
5 VDC	160.0	31				
12 VDC	66.7	180				

Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
Note 2. The operating characteristics are measured at a coil temperature of 23°C.
Note 3. The “Max. voltage” is the maximum voltage that can be applied to the relay coil.
*1. Power consumption with holding voltage are Approx. 32 mW for 1a and Approx. 36 mW for 1c. Please confirm the detail on page 12 Coil Voltage Reduction (Holding Voltage) after Relay operation.

●Contacts
G5Q-1(A)(-EU)Type

Item	SPST-NO (1a)		SPDT (1c)	
	G5Q-1A	-EU type (High-capacity)	G5Q-1	-EU type (High-capacity)
Contact type	Single			
Contact material	Ag-Alloy (Cd free)			
Rated load	10 A at 125 VAC 3 A at 125 VAC 5 A at 250 VAC 3 A at 250 VAC 5 A at 30 VDC	10 A at 250 VAC 10 A at 125 VAC 3 A at 125 VAC 5 A at 250 VAC 3 A at 250 VAC 5 A at 30 VDC	10 A at 125 VAC (NO) 3 A at 125 VAC (NO) 5 A at 250 VAC (NO) 3 A at 250 VAC (NO) 5 A at 30 VDC (NO) 3 A at 125 VAC (NC) 3 A at 250 VAC (NC) 3 A at 30 VDC (NC)	10 A at 250 VAC (NO) 10 A at 125 VAC (NO) 3 A at 125 VAC (NO) 5 A at 250 VAC (NO) 3 A at 250 VAC (NO) 5 A at 30 VDC (NO) 3 A at 125 VAC (NC) 3 A at 250 VAC (NC) 3 A at 30 VDC (NC)
Rated carry current	10 A (NO)/3 A (NC)			
Max. rated voltage	277 VAC, 30 VDC			
Max. rated current	AC: 10 A (NO)/3 A (NC) DC: 5 A (NO)/3 A (NC)			

G5Q-EL, -EL2, -EL3, -HR Type

Item	-EL type (For Resistive load)	-EL2 type (For Inrush load TV-3)	-EL3 type (For Motor load)	-HR type (For High Inrush load TV-8)
Contact type	Single			
Contact material	Ag-Alloy (Cd free)			
Rated load	Resistive load: 10 A at 250 VAC	Capacitive load: Inrush 40 A (100 μs)/ 1 A break at 250 VAC	Motor load: Inrush 30 A (0.5 s)/ 3 A break cosϕ=0.5 at 250 VAC	Resistive load: 10 A at 277 VAC 8 A at 277 VAC
Rated carry current	10 A			
Max. rated voltage	277 VAC			
Max. rated current	AC: 10 A			

■Characteristics

Item		G5Q-1(A)	-EU type (High-capacity)	-EL type (For Resistive load)	-EL2 type (For Inrush load TV-3)	-EL3 type (For Motor load)	-HR type (For Inrush load TV-8)	
							Single-side stable	Single-winding latching Double-winding latching
Contact resistance *1		100 mΩ max.						
Operate (set) time		10 ms max.						15 ms max.
Release (reset) time		5 ms max.						15 ms max.
Min. set/reset pulse width		---						30 ms
Max. set/reset pulse width		---						1 min.
Insulation resistance *2		1,000 MΩ min.						
Dielectric strength	Between coil and contacts	4,000 VAC, 50/60 Hz for 1 min						
	Between contacts of the same polarity	1,000 VAC, 50/60 Hz for 1 min						
Impulse withstand voltage	Between coil and contacts	8 kV (1.2 x 50 μs)						
Vibration resistance	Destruction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)						
	Malfunction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)						
Shock resistance	Destruction	1,000 m/s²						
	Malfunction	100 m/s²						
Durability	Mechanical	10,000,000 operations min (18,000 operations per hour)						1,000,000 operations min (18,000 operations per hour)
	Electrical	• NO 50,000 operations min: 10 A at 125 VAC resistive load (operation: ON for 1 s, OFF for 3 s) 200,000 operations min: 3 A at 125 VAC resistive load 50,000 operations min: 5 A at 250 VAC resistive load 100,000 operations min: 3 A at 250 VAC resistive load 100,000 operations min: 5 A at 30 VDC resistive load (operation: ON for 1 s, OFF for 1 s) • NC 200,000 operations min: 3 A at 125 VAC resistive load 100,000 operations min: 3 A at 250 VAC resistive load 100,000 operations min: 3 A at 30 VDC resistive load (operation: ON for 1 s, OFF for 1 s)	• NO 25,000 operations min: 10 A at 250 VAC resistive load (operation: ON for 1 s, OFF for 3 s) 50,000 operations min: 10 A at 125 VAC resistive load 200,000 operations min: 3 A at 125 VAC resistive load 50,000 operations min: 5 A at 250 VAC resistive load 100,000 operations min: 3 A at 250 VAC resistive load 100,000 operations min: 5 A at 30 VDC resistive load (operation: ON for 1 s, OFF for 1 s) • NC 200,000 operations min: 3 A at 125 VAC resistive load 100,000 operations min: 3 A at 250 VAC resistive load 100,000 operations min: 3 A at 30 VDC resistive load (operation: ON for 1 s, OFF for 1 s)	Resistive load 100,000 operations min (operation: ON for 1 s. OFF for 9 s.)	Capacitive load 100,000 operations min (operation: ON for 1 s. OFF for 3 s.)	Motor load 300,000 operations min (operation: ON for 1 s. OFF for 1 s.)	50,000 operations min: 8 A at 277 VAC resistive load 10,000 operations min: 10 A at 277 VAC resistive load (operation: ON for 1 s, OFF for 9 s)	

Item	G5Q-1(A)	-EU type (High-capacity)	-EL type (For Resistive load)	-EL2 type (For Inrush load TV-3)	-EL3 type (For Motor load)	-HR type (For Inrush load TV-8)	
						Single-side stable	Single-winding latching Double-winding latching
Failure rate (P level) (reference *3)	10 mA at 5 VDC						
Ambient operating temperature	-40°C to 105°C (with no icing or condensation)	-40°C to 85°C (with no icing or condensation)					
Ambient operating humidity	5% to 85%						
Weight	Approx. 6.5 g					Approx. 6.7 g	Approx. 6.0 g

Note. Values in the above table are the initial values at 23°C.
*1. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
*2. Testing conditions: The insulation resistance was measured with a 500 VDC megohmmeter at the same locations as the dielectric strength was measured.
*3. This value was measured at a switching frequency of 120 operations/min.

■Actual Load Life (Reference Values)

G5Q-1A4-EL2-HA

120 VAC Capacitive load

Inrush: 56 A (0_P), Break: 0.2 A (rms)

200,000 operations min. (Ambient temperature: 23°C)

G5Q-1A4-EL3-HA

250 VAC Inductive load

Inrush: 30 A (0_P)/ 0.5 s, Break: 1.7 A (rms)

500,000 operations min. (Ambient temperature: 30°C)

G5Q-1A-HR-HA-VH

250 VAC Capacitive load

Inrush: 160 A (0_P), Break: 3 A (rms)

10,000 operations min. (Ambient temperature: 23°C)

G5QU/K-1A-HR-HA-VH

250 VAC Capacitive load

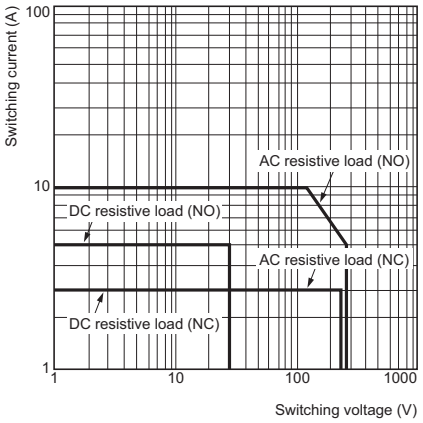
Inrush: 160 A (0_P), Break: 3 A (rms)

50,000 operations min. (Ambient temperature: 23°C)

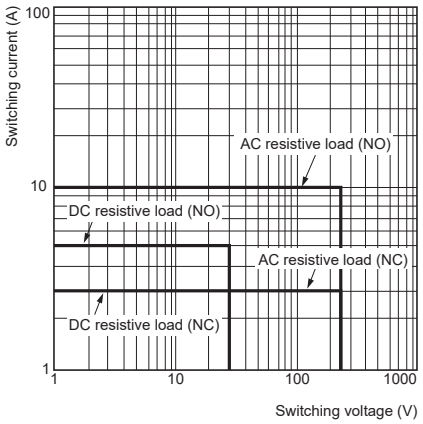
■Engineering Data

●Maximum Switching Capacity

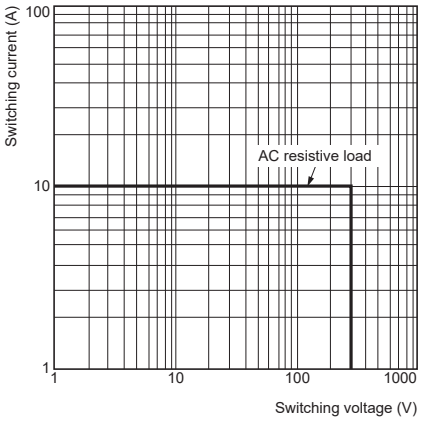
G5Q-1(A)



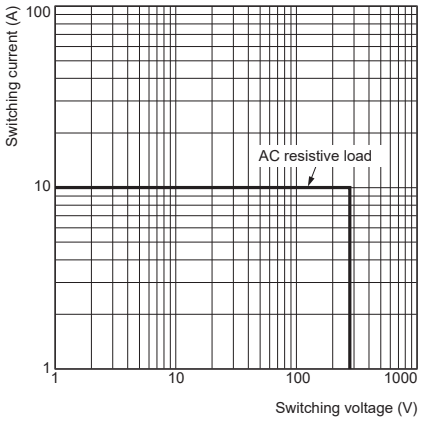
-EU Type (High-capacity)



-EL, -EL2, -EL3 Type

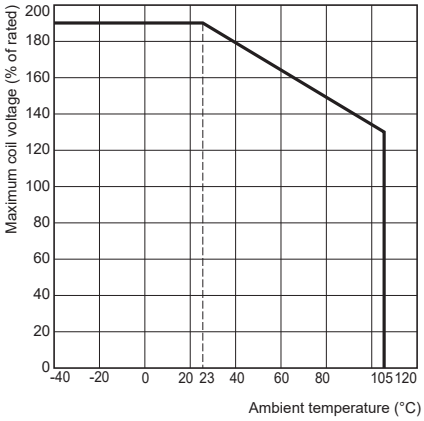


-HR Type

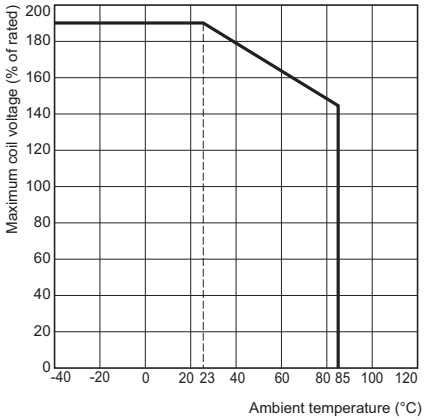


●Ambient Temperature VS. Maximum Coil Voltage

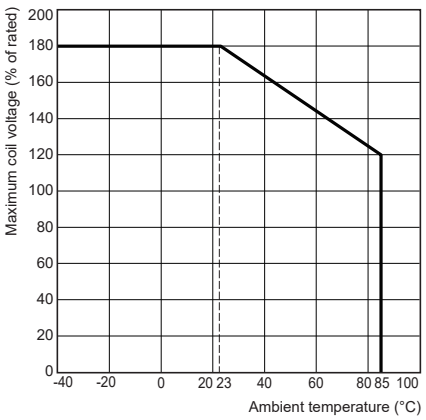
G5Q-1(A)



-EU (High-capacity), -EL, -EL2, -EL3 Type



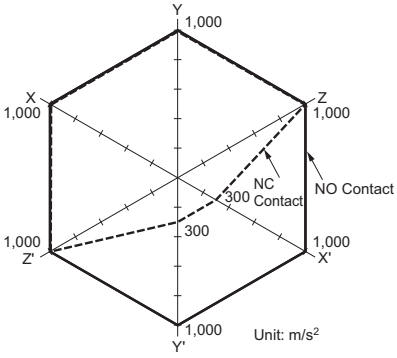
G5Q-1A-HR-HA-VH



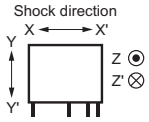
Note. The Maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

●Shock Malfunction

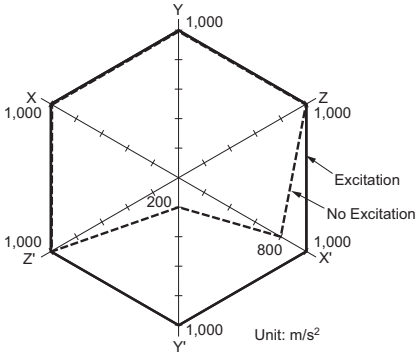
G5Q-1(A)



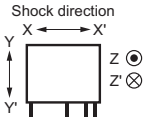
Sample: G5Q-14 12 VDC
Number of Relays: 5 pcs
Test conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with and without energizing the Relays to check the number of malfunctions.
The energized voltage is 100% of the rated voltage.
Requirement: None malfunction 100 m/s²



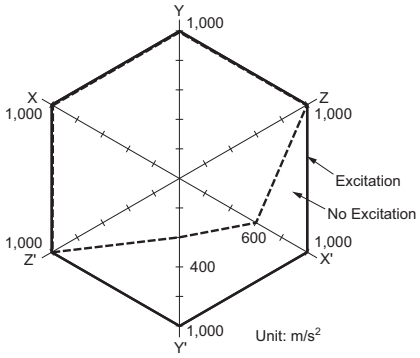
-EL, -EL2, -EL3 Type



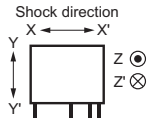
Sample: G5Q-1A-EL-HA-VH
Number of Relays: 5 pcs
Test conditions: Measure the value of contact malfunction happening by applying 3 axes with 6 direction 3 times each.
Requirement: None malfunction 100 m/s²



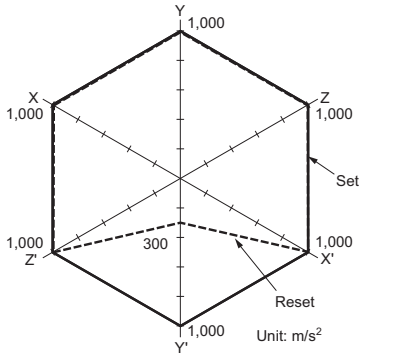
G5Q-1A-HR-HA-VH



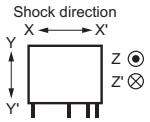
Sample: G5Q-1A-EL-HA-VH
Number of Relays: 5 pcs
Test conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with and without energizing the Relays to check the number of malfunctions.
The energized voltage is 100% of the rated voltage.
Requirement: None malfunction 100 m/s²



G5QU/K-1A-HR-HA-VH

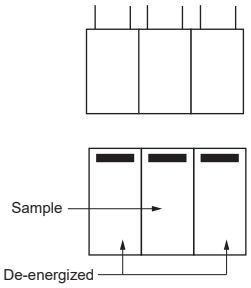


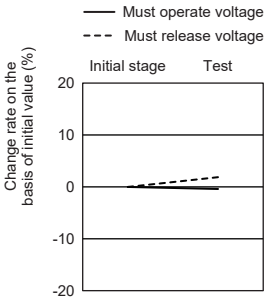
Sample: G5QU-1A-HR-HA-VH
Number of Relays: 5 pcs
Test conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with set and reset status to check the number of contact malfunctions.
Requirement: None malfunction 100 m/s²

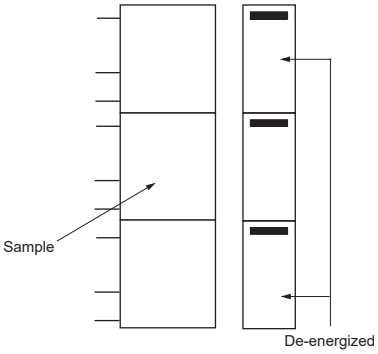


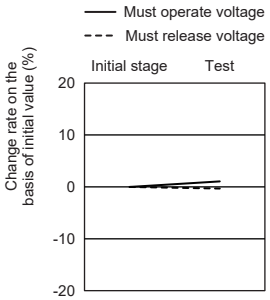
●Mutual Magnetic Interference

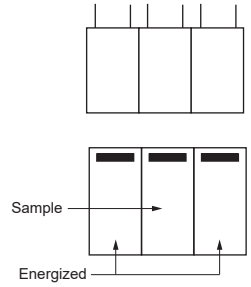
G5QU-1A-HR-HA-VH

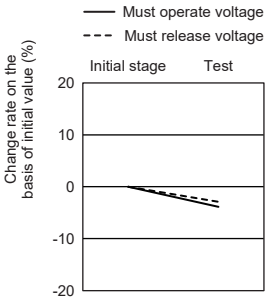


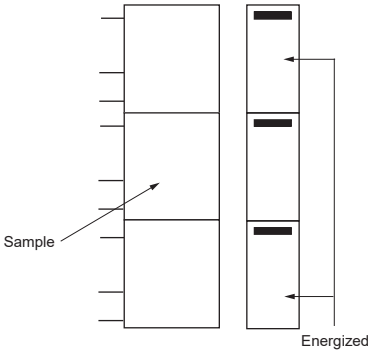


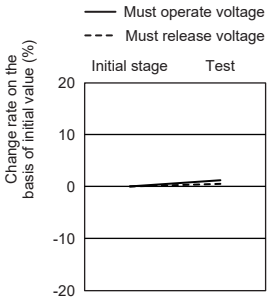




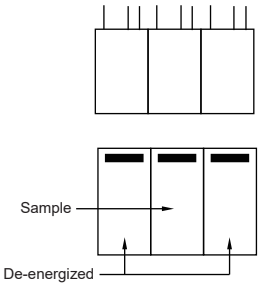


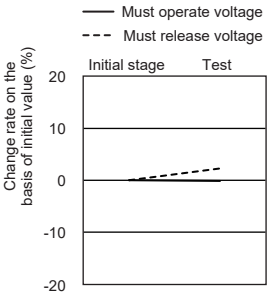


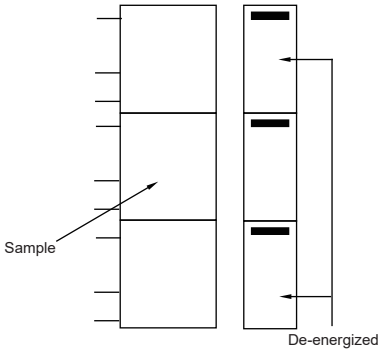


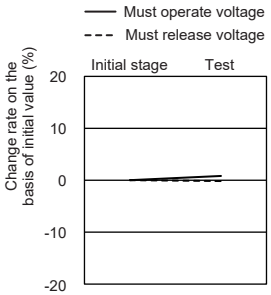


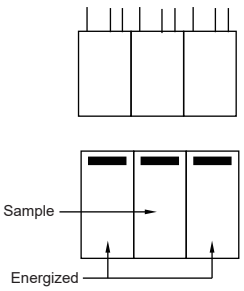
G5QK-1A-HR-HA-VH

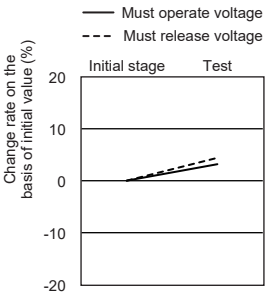


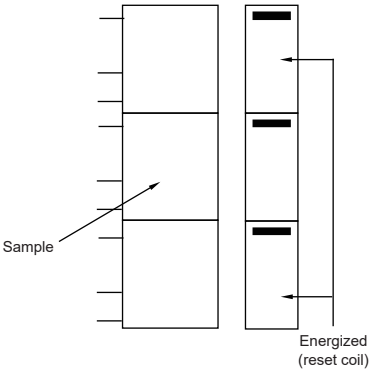


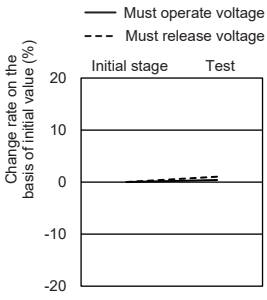










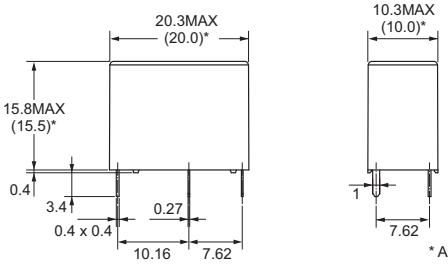


■Dimensions

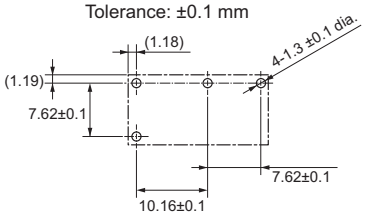
CAD Data marked products, 2D drawings and 3D CAD models are available.
For CAD information, please visit our website, which is noted on the last page.

(Unit: mm)

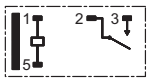
G5Q-1A(4)(-EU)(-HA)(-PW)



PCB Mounting Holes
(Bottom View)
Tolerance: ±0.1 mm



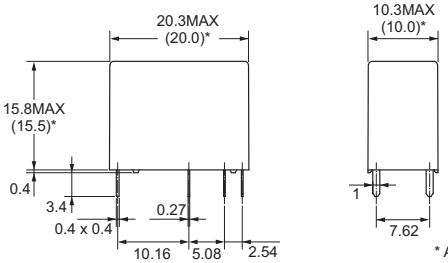
Terminal Arrangement/ Internal Connections
(Bottom View)



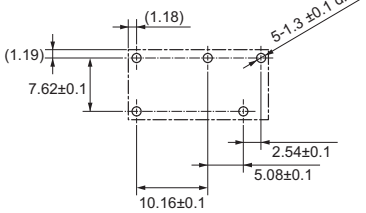
(No coil polarity)

CAD Data

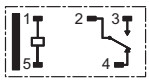
G5Q-1(4)(-EU)(-HA)(-PW)



PCB Mounting Holes
(Bottom View)
Tolerance: ±0.1 mm



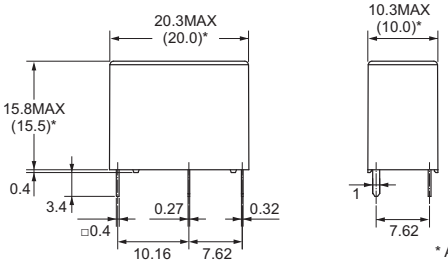
Terminal Arrangement/ Internal Connections
(Bottom View)



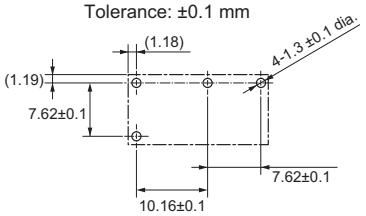
(No coil polarity)

CAD Data

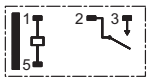
G5Q-1A-EL-HA-VH
G5Q-1A4-EL2-HA
G5Q-1A4-EL3-HA
G5Q-1A-HR-HA-VH



PCB Mounting Holes
(Bottom View)
Tolerance: ±0.1 mm



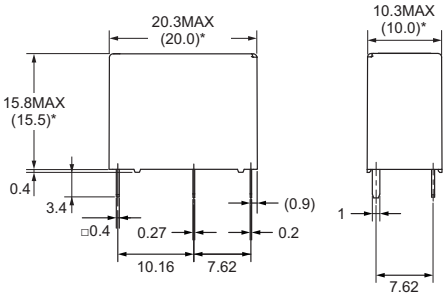
Terminal Arrangement/ Internal Connections
(Bottom View)



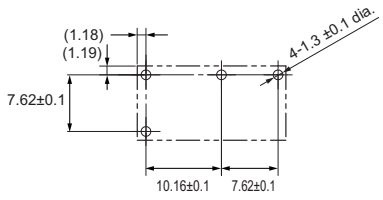
(No coil polarity)

CAD Data

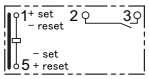
G5QU-1A-HR-HA-VH



PCB Mounting Holes
(Bottom View)
Tolerance: ±0.1 mm



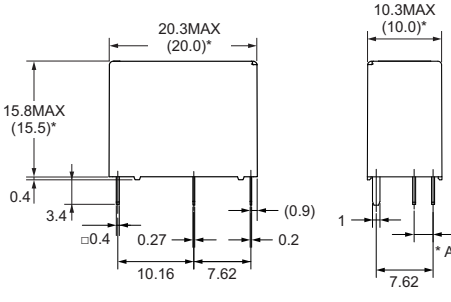
Terminal Arrangement/ Internal Connections
(Bottom View)



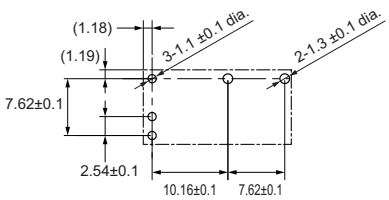
(No coil polarity except for single-winding latching type)

CAD Data

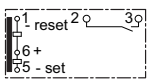
G5QK-1A-HR-HA-VH



PCB Mounting Holes
(Bottom View)
Tolerance: ±0.1 mm



Terminal Arrangement/ Internal Connections
(Bottom View)



CAD Data

■Approved Standards

UL Recognized:
CSA Certified:
G5Q-1(A)(-EU)
G5Q-EL, EL2, EL3

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	File No.
G5Q-1(A)	SPST-NO(1a) SPDT(1c)	5 to 24 VDC	10 A 250 VAC N.O. only (Resistive) 105°C	6,000	UL: E41515 CSA: LR31928
			10 A 30 VDC N.O. only (Resistive) 105°C	6,000	
			4 A 250 VAC N.O. only (Resistive) 85°C	100,000	
			3 A 250 VAC N.C. only (Resistive) 105°C	6,000	
			3 A 30 VDC N.C. only (Resistive) 105°C	6,000	
G5Q-1(A)-EU (High-capacity)	SPST-NO(1a) SPDT(1c)	5 to 24 VDC	10 A 250 VAC N.O. only (Resistive) 105°C	6,000	UL: E41515 CSA: LR31928
			10 A 30 VDC N.O. only (Resistive) 105°C	6,000	
			4 A 250 VAC N.O. only (Resistive) 85°C	100,000	
			3 A 250 VAC N.C. only (Resistive) 105°C	6,000	
			3 A 30 VDC N.C. only (Resistive) 105°C	6,000	
G5Q-1A-EL-HA-VH	SPST-NO(1a)	5, 12, 24 VDC	10 A 250 VAC (Resistive) 40°C	6,000	UL: E41515 CSA: LR31928
G5Q-1A4-EL2-HA	SPST-NO(1a)	5, 12, 24 VDC	5 A 250 VAC (Resistive) 85°C	6,000	UL: E41515 CSA: LR31928
			TV-3 (Peak Inrush 51 A / Break 3 A 120 VAC) 40°C	25,000	
			1 A 120 VAC 30 A Inrush-max. 1 ms 85°C	25,000	
G5Q-1A4-EL3-HA	SPST-NO(1a)	5, 12, 24 VDC	10 A 250 VAC (Resistive) 40°C	50,000	UL: E41515 CSA: LR31928
			1/2HP 250 VAC 40°C	50,000	
			1/6HP 125 VAC 40°C	50,000	

UL/C-UL Recognized:
G5Q-HR

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	File No.
G5Q-1A-HR-HA-VH	SPST-NO(1a)	3, 5, 12, 24 VDC	8 A 277 VAC (Resistive) 85°C	50,000	E41515
			10 A 277 VAC (Resistive) 85°C	10,000	
			TV-8 (Peak Inrush 117 A / Break 8 A 120 VAC) 40°C	25,000	
			3 A 277 VAC (E Ballast) 40°C	6,000	
G5QU-1A-HR-HA-VH	SPST-NO(1a)	3, 5, 12, 24 VDC	8 A 277 VAC (Resistive) 85°C	50,000	E41515
			10 A 277 VAC (Resistive) 85°C	10,000	
			TV-8 (Peak Inrush 117 A / Break 8 A 120 VAC) 40°C	25,000	
			5 A 277 VAC (E Ballast) 40°C	6,000	
G5QK-1A-HR-HA-VH	SPST-NO(1a)	3, 5, 12 VDC	8 A 277 VAC (Resistive) 85°C	50,000	E41515
			10 A 277 VAC (Resistive) 85°C	10,000	
			TV-8 (Peak Inrush 117 A / Break 8 A 120 VAC) 40°C	25,000	
			5 A 277 VAC (E Ballast) 40°C	6,000	

EN/IEC, VDE
G5Q-1(A)(-EU)
G5Q-EL, -EL2, -EL3
G5Q-HR

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	Certification No.
G5Q-1(A)	SPST-NO (1a) SPDT (1c)	5 to 24 VDC	10 A 250 VAC (cosϕ=1) (N.O.) 105°C 5 A 30 VDC (0 ms) (N.O.) 105°C 3 A 30 VDC (0 ms) (N.C.) 105°C	10,000	40009467
G5Q-1 (A) -EU (High-capacity)	SPST-NO (1a) SPDT (1c)	5 to 24 VDC	10 A 250 VAC (cosϕ=1) (N.O.) 105°C 5 A 30 VDC (0 ms) (N.O.) 105°C 3 A 30 VDC (0 ms) (N.C.) 105°C	10,000	40009467
G5Q-1A-EL-HA-VH	SPST-NO (1a)	5, 12, 24 VDC	10 A 250 VAC (cosϕ=1) 105°C	10,000	40009467
G5Q-1A4-EL2-HA	SPST-NO (1a)	5, 12, 24 VDC	5 A 250 VAC (cosϕ=1) 85°C	10,000	40009467
			Peak Inrush 30 A / Break 1 A 230 VAC 85°C	25,000	
G5Q-1A4-EL3-HA	SPST-NO (1a)	5, 12, 24 VDC	3 A 250 VAC (cosϕ=0.4) 85°C	50,000	40009467
G5Q-1A-HR-HA-VH G5QU-1A-HR-HA-VH	SPST-NO (1a)	3, 5, 12, 24 VDC	8 A 277 VAC (Resistive) 85°C	50,000	40058560
			10 A 277 VAC (Resistive) 85°C	10,000	
			IEC60669-1: 3 A 277 VAC Capacitor 35 μF room temperature	5,000	
G5QK-1A-HR-HA-VH	SPST-NO (1a)	3, 5, 12 VDC	8 A 277 VAC (Resistive) 85°C	50,000	40058560
			10 A 277 VAC (Resistive) 85°C	10,000	
			IEC60669-1: 3 A 277 VAC Capacitor 35 μF room temperature	5,000	

Item	G5Q-1(A), -EU (High-capacity) type	-EL, -EL2, -EL3 type	-HR type
Creepage Distance	6.4 mm min.	6.4 mm min.	6.4 mm min.
Clearance Distance	5.5 mm min.	5.5 mm min.	5.5 mm min.
Insulation Material Group	IIIa	IIIa	IIIa
Type of Insulation Coil-contact Circuit Open Contact Circuit	Basic (Rated voltage 400 V)/ Reinforced (Rated voltage 250 V) Micro disconnection	Reinforced (Rated voltage 250 V) Micro disconnection	Reinforced (Rated voltage 277 V) Micro disconnection
Rated Insulation Voltage	250 V	250 V	320 V
Pollution Degree	2	2	2
Rated Voltage	250 V/400 V(EU flux type only)	250 V	277 V
Over Voltage Category	III	III	III
Category of Protection according to IEC 61810-1	RTII (Flux protection)/RTIII (Sealed)	RTII (Flux protection)/RTIII (Sealed)	RTII (Flux protection)
Glow Wire according to IEC 60335-1	<HA Models only> GWT 750°C min. (IEC 60695-2-11)/ GWFI 850°C min. (IEC 60695-2-12)	GWT 750°C min. (IEC 60695-2-11)/ GWFI 850°C min. (IEC 60695-2-12)	GWT 750°C min. (OEC 60695-2-11)/ GWTFI 850°C min. (IEC 60695-2-12)
Tracking Index of Relay Base	PTI 250 V min.	PTI 250 V min.	PTI 277 V min.
Flammability Class according to UL 94	V-0	V-0	V-0
Coil Insulation System	F Class(UL 1446)	F Class(UL 1446)	F Class(UL 1446)

●Regarding IEC/EN60079-1, -15

Type of protection: Enclosed-break devices (Group IIA*)(IEC/EN) 60079-1 clause 15.5 testing passed.

Type of protection: Sealed devices (IEC/EN) 60079-15 clause 11.2 testing passed.

*Gas protection group definition:

– Group IIA: (55 ± 0.5) % hydrogen/air at atmospheric pressure;
– Group IIB: (37 ± 0.5) % hydrogen/air at atmospheric pressure;
– Group IIC: (40 ± 1) % hydrogen, (20 ± 1) % oxygen and the remainder nitrogen at atmospheric pressure or alternatively (27.5 ± 1.5) % hydrogen/air at an overpressure at a pressure equal to 1.5 times atmospheric pressure.

Please contact your local OMRON representative for more details on the standards.

■Precautions

●Please refer to “PCB Relays Common Precautions” for correct use.

Precautions for Safe Use

●Drop the Relay

• The relay may not work properly. Do not use the relay that has dropped.

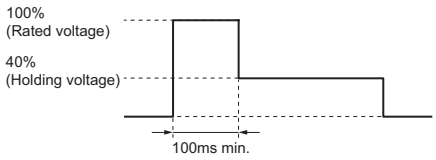
Correct Use

●Coil Voltage Reduction (Holding Voltage) after Relay operation

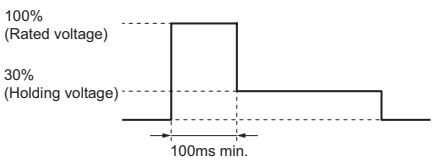
• If the coil voltage is reduced to the holding voltage after relay operation, first apply the rated voltage to the coil for at least 100 ms, as shown below.

• A voltage of at least 40% (G5Q-1A type) /30% (G5Q-1 type) of the rated voltage is required for the coil holding voltage.
Do not allow voltage fluctuations to cause the coil holding voltage to fall below this level.

G5Q-1A



G5Q-1



G5Q-1A

	Applied coil voltage	Coil resistance*	Power consumption
Rated voltage	100%	125 Ω (5 VDC) 720 Ω (12 VDC) 2,880 Ω (24 VDC)	Approx. 200 mW
Holding voltage	40%		Approx. 32 mW

* The coil resistance were measured at a coil temperature of 23°C with tolerances of ±10%.

G5Q-1

	Applied coil voltage	Coil resistance*	Power consumption
Rated voltage	100%	63 Ω (5 VDC) 360 Ω (12 VDC) 1,440 Ω (24 VDC)	Approx. 400 mW
Holding voltage	30%		Approx. 36 mW

* The coil resistance were measured at a coil temperature of 23°C with tolerances of ±10%.

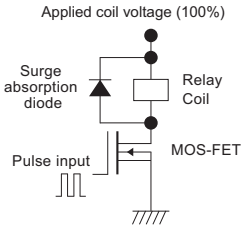
●Power consumption reduction of coil with pulse width modulation (PWM)

• Models with PWM drive capability (-PW) can reduce coil holding current with PWM control. This function reduces power consumption by reducing the current held by coil.

• Apply the rated voltage for at least 100 ms at the time of relay operation.

• The following are our verification conditions. When using, it be sure to check the actual machine under the actual usage conditions.

■Example of drive circuit

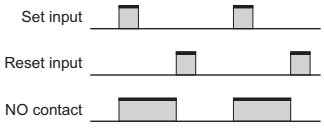


■Conditions of validation carried out by OMRON

• Applied voltage: rated voltage
• Duty: 50% or more
• Frequency: 10 kHz or more
• Diode Vf: 0.4 V or less

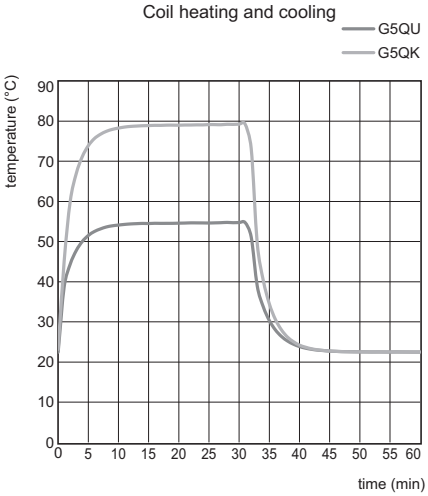
●**Basic Operation of Latching Relays**

• In these relays, the input pulse of the set coil causes the operating condition to be maintained magnetically or mechanically, whereas the input pulse to the reset coil side puts the relay into the reset condition.



●**Coil Temperature Rise of Long Time Continuous Current to the Coil**

• When the coil is applied continuous current for a long time, the coil would be heated too much.
Please decide the coil input pulse width by “heat and cold of coil temperature.”



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